

In re Patent Application of:
ROY
Serial No. 10/777,871
Filing Date: February 12, 2004

In the Claims:

1. (Currently amended) A communications system comprising:

a plurality of mobile wireless communications devices each comprising a respective software client using at least one of a plurality of different operating protocols as configuration commands and instructions for accessing electronic mail and data systems to send at least one access request;

a plurality of data storage devices for storing data files, each data file being associated with a respective mobile wireless communications device, each data file having a unique identification (UID) associated therewith, and each data storage device using at least one of the plurality of different operating protocols; and

a protocol interface device comprising

a protocol converter module for communicating with said plurality of mobile wireless communications devices using respective operating protocols thereof, and

a protocol engine module for communicating with said plurality of data storage devices using respective operating protocols thereof,

said protocol engine module also for polling said data storage devices for UIDs of data files stored thereon, and for cooperating with said protocol converter module to provide UIDs for respective data files to said mobile wireless communications devices

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upon receiving access requests therefrom, wherein said polling occurs without device initiated commands from said software clients whether there is or is not communications with a mobile wireless communications device to maintain UID's current to within a polling interval and reducing latency when communication occurs.

2. (Original) The communications system of Claim 1 wherein said protocol engine module detects new data files stored on said data storage devices based upon UIDs thereof, and wherein said protocol engine module cooperates with said protocol converter module to send alert notifications to respective mobile wireless communications devices upon detecting new data files therefor.

3. (Original) The communications system of Claim 1 wherein said protocol interface device further comprises a memory coupled to said protocol engine module for storing the UIDs.

4. (Original) The communications system of Claim 1 wherein said protocol engine module polls said data storage devices only for UIDs.

5. (Original) The communications system of Claim 1 wherein said protocol engine module polls said data storage devices based upon a static polling interval.

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6. (Original) The communications system of Claim 1 wherein said protocol engine module polls said data storage devices based upon an adaptive polling interval.

7. (Original) The communications device of Claim 1 wherein said protocol converter module and said protocol engine module communicate using a common interface protocol able to represent a desired number of protocol-supported elements for a desired operating protocol.

8. (Original) The communications system of Claim 7 wherein the common interface protocol is based upon a Web-based distributed authoring and versioning (WebDAV) protocol.

9. (Original) The communications system of Claim 1 wherein said plurality of data storage devices, said plurality of wireless mobile communications devices, and said protocol interface device process electronic mail (e-mail) messages.

10. (Original) The communications system of Claim 1 further comprising a wide area network (WAN) connecting at least one of said wireless mobile communications devices with said protocol interface device.

11. (Original) The communications system of Claim 1 further comprising a wide area network (WAN) connecting at least

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one of said data storage devices with said protocol interface device.

12. (Currently amended) A protocol interface device for interfacing a plurality of mobile wireless communications devices with a plurality of data storage devices, the mobile wireless communications devices each comprising a respective software client, and the software clients and data storage devices each using at least one of a plurality of different operating protocols as configuration commands and instructions for accessing electronic mail and data systems, and the mobile wireless communications devices for sending at least one access request for accessing data files stored on the data storage devices, each data file being associated with a respective mobile wireless communications device and having a unique identification (UID) associated therewith, the protocol interface device comprising:

a protocol converter module for communicating with the plurality of mobile wireless communications devices using respective operating protocols thereof; and

a protocol engine module for communicating with the plurality of data storage devices using respective operating protocols thereof;

said protocol engine module also for polling the data storage devices for UIDs of data files stored thereon, and for cooperating with said protocol converter module to provide UIDs for respective data files to the mobile wireless communications

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devices upon receiving access requests therefrom, wherein said polling occurs without device initiated commands from the software clients whether there is or is not communications with a mobile wireless communications device to maintain UID's current to within a polling interval and reducing latency when communication occurs.

13. (Original) The protocol interface device of Claim 12 wherein said protocol engine module detects new data files stored on the data storage devices based upon UIDs thereof, and wherein said protocol engine module cooperates with said protocol converter module to send alert notifications to respective mobile wireless communications devices upon detecting new data files therefor.

14. (Original) The protocol interface device of Claim 12 further comprising a memory coupled to said protocol engine module for storing the UIDs.

15. (Original) The protocol interface device of Claim 12 wherein said protocol engine module polls said data storage devices only for UIDs.

16. (Original) The protocol interface device of Claim 12 wherein said protocol engine module polls said data storage devices based upon a static polling interval.

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17. (Original) The protocol interface device of Claim 12 wherein said protocol engine module polls said data storage devices based upon an adaptive polling interval.

18. (Currently amended) A protocol interface device for interfacing a plurality of communications devices with a plurality of data storage devices, the communications devices each comprising a respective software client, and the software clients and data storage devices each using at least one of a plurality of different operating protocols as configuration commands and instructions for accessing electronic mail and data systems, and the communications devices for sending at least one access request for accessing data files stored on the data storage devices, each data file being associated with a respective communications device and having a unique identification (UID) associated therewith, the protocol interface device comprising:

a protocol converter module for communicating with the plurality of communications devices using respective operating protocols thereof; and

a protocol engine module for communicating with the plurality of data storage devices using respective operating protocols thereof;

said protocol engine module also for polling the data storage devices for UIDs of data files stored thereon, and for cooperating with said protocol converter module to provide UIDs for respective data files to the communications devices upon

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receiving access requests therefrom, wherein said polling occurs without device initiated commands from the software clients whether there is or is not communications with a mobile wireless communications device to maintain UID's current to within a polling interval and reducing latency when communication occurs.

19. (Original) The protocol interface device of Claim 18 wherein said protocol engine module detects new data files stored on the data storage devices based upon UIDs thereof, and wherein said protocol engine module cooperates with said protocol converter module to send alert notifications to respective communications devices upon detecting new data files therefor.

20. (Original) The protocol interface device of Claim 18 further comprising a memory coupled to said protocol engine module for storing the UIDs.

21. (Original) The protocol interface device of Claim 18 wherein said protocol engine module polls said data storage devices only for UIDs.

22. (Original) The protocol interface device of Claim 18 wherein said protocol engine module polls said data storage devices based upon a static polling interval.

23. (Original) The protocol interface device of Claim 18 wherein said protocol engine module polls said data storage

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devices based upon an adaptive polling interval.

24. (Currently amended) A method for interfacing a plurality of mobile wireless communications devices with a plurality of data storage devices, the mobile wireless communications devices each comprising a respective software client, and the software clients and data storage devices each using at least one of a plurality of different operating protocols as configuration commands and instructions for accessing electronic mail and data systems, and the mobile wireless communications devices for sending at least one access request for accessing data files stored on the data storage devices, each data file being associated with a respective mobile wireless communications device and having a unique identification (UID) associated therewith, the method comprising:

providing a protocol converter module for communicating with the plurality of mobile wireless communications devices using respective operating protocols thereof; and

providing a protocol engine module for communicating with the plurality of data storage devices using respective operating protocols thereof, the protocol engine module also for polling the data storage devices for UIDs of data files stored thereon, and for cooperating with the protocol converter module to provide UIDs for respective data files to the mobile wireless communications devices upon receiving access requests therefrom, wherein said polling occurs without device initiated commands from the software clients whether there is or is not

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communications with a mobile wireless communications device to maintain UID's current to within a polling interval and reducing latency when communication occurs.

25. (Original) The method of Claim 24 wherein the protocol engine module detects new data files stored on the data storage devices based upon UIDs thereof, and wherein the protocol engine module cooperates with the protocol converter module to send alert notifications to respective mobile wireless communications devices upon detecting new data files therefor.

26. (Original) The method of Claim 24 wherein the protocol engine module polls the data storage devices only for UIDs.

27. (Original) The method of Claim 24 wherein the protocol engine module polls the data storage devices based upon a static polling interval.

28. (Original) The method of Claim 24 wherein the protocol engine module polls the data storage devices based upon an adaptive polling interval.

29. (Currently amended) A computer-readable medium on a tangible embodiment and having computer executable modules for interfacing a plurality of mobile wireless communications devices with a plurality of data storage devices, the mobile wireless

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communications devices each comprising a respective software client, and the software clients and data storage devices each using at least one of a plurality of different operating protocols as configuration commands and instructions for accessing electronic mail and data systems, and the mobile wireless communications devices for sending at least one access request for accessing data files stored on the data storage devices, each data file being associated with a respective mobile wireless communications device and having a unique identification (UID) associated therewith, the computer-readable medium comprising:

a protocol converter module for communicating with the plurality of mobile wireless communications devices using respective operating protocols thereof; and

a protocol engine module for communicating with the plurality of data storage devices using respective operating protocols thereof, the protocol engine module also for polling the data storage devices for UIDs of data files stored thereon, and for cooperating with the protocol converter module to provide UIDs for respective data files to the mobile wireless communications devices upon receiving access requests therefrom, wherein said polling occurs without device initiated commands from the software clients whether there is or is not communications with a mobile wireless communications device to maintain UID's current to within a polling interval and reducing latency when communication occurs.

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30. (Original) The computer-readable medium of Claim 29 wherein the protocol engine module detects new data files stored on the data storage devices based upon UIDs thereof, and wherein the protocol engine module cooperates with the protocol converter module to send alert notifications to respective mobile wireless communications devices upon detecting new data files therefor.

31. (Original) The computer-readable medium of Claim 29 wherein the protocol engine module polls the data storage devices only for UIDs.

32. (Original) The computer-readable medium of Claim 29 wherein the protocol engine module polls the data storage devices based upon a static polling interval.

33. (Original) The computer-readable medium of Claim 29 wherein the protocol engine module polls the data storage devices based upon an adaptive polling interval.